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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,923	12/21/2001	Brian Gaither Bates	AM100369	9899

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WYETH
PATENT LAW GROUP
5 GIRALDA FARMS
MADISON, NJ 07940

EXAMINER	
TURNER, SHARON L	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 07/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/027,923	BATES ET AL.	
	Examiner	Art Unit	
	Sharon L. Turner	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 May 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5,10-19 and 36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,10-19 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2001* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment

1. The amendment filed 5-6-04 has been entered into the record and has been fully considered.

2. Claims 1, 5, 10-19 and 36 are pending.

3. The declaration under 37 CFR 1.132 by Kamalakar Gulukota has been entered into the record and has been fully considered. The declaration is sufficient to overcome the rejection of claims 1-11, 14-19 and 36 based upon Wong et al., US Patent Application Publication US 2002/0142952, filed 3-29-01 and published 10-3-02, as the invention is not "by another".

4. The Examiner notes that the Takahashi, Walker and Tatarczynska references were not received in Applicant's communication of 5-6-04 or properly made of record. Thus, the references and arguments thereto have not been considered further. Copies of the Romano 1996, Romano 2001, Spooren, and Bordi references were received and have been fully considered.

5. The evidence of ATCC deposit under the Budapest treaty of cDNA clone Y1176 as deposit designation PTA-2775 is acknowledged. Applicant's referral to such deposit on Dec. 12, 200 is noted in the specification at p. 11.

6. The text of Title 35 of the U.S. Code not reiterated herein can be found in the previous office action.

7. As a result of Applicant's amendment, all rejections not reiterated herein have been withdrawn by the Examiner.

Election/Restriction

8. Applicant's election of Group I, claims 1-19 and 36 in the Paper of 11-13-03 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Priority

9. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 1, 5, 10-19 and 36 of this application. In particular, the priority application is not sufficient as utility is not established and hence the requirements of 35 USC 112 are unfulfilled, see utility rejection as noted below. Therefore the effective filing date awarded instant claims is the filing date of instant application 12-21-01.**Claim Rejections - 35 USC § 101**

10. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

11. Claims 1, 5, 10-19 and 36 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial, credible asserted utility or a well established utility.

The specification discloses at pp. 1-5, that the invention is related to nucleic acids and peptides referred to as metabotropic glutamate receptor subtype modulatory

proteins (also referred to herein as the mGluR5M proteins or the mGluR5M family. The peptides are noted to be related by homology to mGluR5 receptor proteins, particularly in N- and C-terminal regions, hence the name. In addition, the molecules, mimics and/or modulators are noted to be useful in regulating a variety of cellular processes. For example the specification notes uses related to screening assays, detection assays, chromosomal mapping, tissue typing, prevention, forensics, diagnostics, prognostics, monitoring in clinical trials, prophylaxis, therapeutics and pharmacogenomics, see in particular pp. 50-65. In particular, pp. 10 of the specification notes that, "a "mGluR5M activity", "biological activity of mGluR5M" or "functional activity of mGluR5M" includes modulation (e.g., enhancement or inhibition) of glutamate receptor functions and/or activities, in particular, metabotropic glutamate receptor functions and/or activities (e.g., mGluR5 functions and/or activities)... In a preferred embodiment, a mGluR5M activity is at least one of the following activities: (1) modulation of G protein linked second messenger signaling pathways (e.g., modulation of diacylglycerol and/or inisitol triphosphate-mediated signaling pathways), for example, signaling pathways involved in neuronal cell signalling and nervous system function; (2) modulation of glutamatergic transmission; (3) modulation of neuronal excitability; (4) regulation of synaptic transmission; (5) modulation of neurotransmitter release (e.g., glutamate release); (6) regulation of voltage-dependent and/or voltage-independent and/or ligand-gated ion channels (e.g. , K+ channels or Ca2+ channels); (7) regulation of neuronal development (e.g., regulation of neuronal differentiation, migration and/or survival in the developing brain); (8) modulatoin of nervous system function; and (9) modulation of

neurodegenerative processes (e.g., acute or chronic neurodegenerative processes). In yet another embodiment, a mG1uR5M 5 activity is modulation of mG1uR5 dimerization e.g., mG1uR5a and/or mGluR5b dimerization) and/or dimerization of other mGluR family members (e.g., mGluR1 dimerization)." In addition, the functions noted are said to be useful for example in, "treating, for example, neurodegenerative disorders and/or diseases (e.g., motor neuron disease (MND), amyotrophic lateral sclerosis (ALS), Huntington's chorea, Parkinson's disease and Alzheimer's disease), stoke, the brain damage occurring acutely after status epilepticus, cerebral ischemia or 'tratzmatic brain injury and/or movement disorders.

Yet the specification provides no specific and detailed information as to the noted laundry list of possible activities, functions and uses for the specific mGluR5M identified molecules of SEQ ID NO's:1-3. The specification fails to exemplify any specific and substantial use of the claimed nucleic acids and/or protein encoded thereby. In particular, the significance of the molecule, its functions, effects and substantial utility are lacking. While the specification contemplates the various reagents as useful in the noted molecular techniques of experimentation, such utilities are not specific or substantial because the uses merely rely on the inherent properties of any nucleic acid to hybridize (bind) and/or encode and any peptide to bind and/or stimulate an immune response. The uses stem from the broad generic class of properties applicable to any nucleic acid or peptide molecule. Thus, the disclosed nucleic acids and peptides merely constitute research reagents for further experimentation to discover their "real-world" use. The contemplated uses also do not constitute well-established utilities because

their functional significance has yet to be established. The peptides are merely disclosed as being related to glutamate receptor proteins and neuronal cell function and/or cell signaling in general. Yet there is no known sequence structure or function disclosed or recognized as being related to any of a multitude of neurological or neuron associated functions. In addition, the specification does not teach any conserved nucleic or amino acid positions critical to a particular neuron activity, function or phenotype. The biological significance remains to be established such that the artisan can use the peptides and/or nucleic acids to provide public benefit. No "real world" utility is disclosed.

As recognized by Skolnick et al., Trends in Biotech., 18(1):34-39, 2000, the skilled artisan is well aware that there is an unpredictable nature in the ability of encoding nucleic acids to predict structural and functional activities for any particular protein or protein family, and that even when highly homologous and conserved residues are known only experimental research can confirm the artisan's best guess, see in particular Skolnick, abstract and Box 2. Moreover, Schoepp et al., notes different function even amongst metabotropic glutamate receptors in relation to brain function and pathology, see in particular TIPS, 14(1):13-20, Jan. 1993. Thus, the assignment of instant SEQ ID NO's: 1-3 as mGluR5M molecules and the brief mention of its' relationship to glutamate receptors in general, fails to define a specific or substantial asserted utility or well-established utility for the claimed sequences.

Applicants traverse in the response of 5-6-04. In particular, Applicants note the teachings of Exhibits A-D; Romano et al., 1996 and 2001, Spooren and Bordi.

Applicants note the similarity of their mGluR5M isolated sequence to that of mGluR5, tissue expression as in Example 1 and property of dimerization as at Table 1, p. 71. Applicants further note assays to identify molecules that modulate dimerization of mGluR5 and mGluR5M and that this utility is specific. Applicants note that the binding domain is within the N-terminus, that homodimers are functionally relevant and therapeutically important as in Walker, Tatarczynska and Spooren. Thus Applicants assert utility is substantial and credible for identifying compounds which modulate dimmer activity.

Applicant's arguments submitted 5-6-04 have been fully considered but are not persuasive. The Examiner notes that the Takahashi, Walker and Tatarczynska references were not received in Applicant's communication of 5-6-04 or properly made of record. Thus, the references and arguments thereto have not been considered further. Copies of the Romano 1996, Romano 2001, Spooren, and Bordi references have been received and have been fully considered. Assays to identify molecules that modulate the noted dimerization are not viewed as providing a specific and substantial asserted utility or well established utility for the claimed invention. In particular, the utility is dependent upon experimental research testing for which no predictable outcome is provided. Specifically, neither the specification nor art teach the significance of mGluR5:mGluR5M dimerization or the significance of any molecule capable of modulating such interaction. As no basis for screening or outcome is provided, utility is not established. As previously noted mGluR5 is hypothesized to play a role in any number of neuronal and non-neuronal signaling events. Yet neither the art nor the

specification teach a particular role for the claimed sequences in modulating such activities either in a positive or a negative fashion. For example, Spooren notes a number of mGluR5 antagonists for which different activities are noted, see in particular p. 336. Yet the specification and art fail to evidence any role for instant sequences in modulating particular function. While the references note dimerization events, the significance of the dimmers is not established nor any effect of modulating them. Hence relevance, significance and utility cannot be established.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:
> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claims 1, 5, 10-19 and 36 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial, credible asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

14. Claims 5, 10-12, 15-19 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

The specification describes SEQ ID NO:1-3 representing mGluR5M nucleic and

polypeptide sequences yet no functional significance or activity is described for the disclosed sequences. The claims encompass polypeptides comprising fragments and homologues, i.e., polypeptides that vary substantially in length and amino acid composition. In particular, the language of the claims is directed to hybridizing sequences under stringent conditions, the DNA insert of the plasmid deposited with ATCC as Accession Number PTA-2775, hybridizing sequences and sequences that encode a polypeptide lacking a transmembrane domain.

The instant disclosure of a single polypeptide, that of SEQ ID NO's:1-3 with no instantly disclosed specific activities, does not adequately support the scope of the claimed genus, which encompasses a substantial variety of subgenera. A genus claim may be supported by a representative number of species as set forth in Regents of the University of California v Eli Lilly & Co, 119F3d 1559, 1569, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997), which states:

> "To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention". Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1980) ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.") Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d 1565, 1572, 41 USPQ2d at 1966.
>
> An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not

> a mere wish or plan for obtaining the claimed chemical invention. Fiers v. Revel, 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." Id at 1170, 25 USPQ2d at 1606."

A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus, or of a recitation of structural features common to the genus, which features constitute a substantial portion of the genus. The instant specification discloses, however, a single isolated polypeptide sequence, that of SEQ ID NO: 2 and no other amino acid sequences that are proposed to possess the same activity. The specification fails to describe either the structural or functional characteristics of hybridizing sequences under stringent conditions, the DNA insert of the plasmid deposited with ATCC as Accession Number PTA-2775 and hybridizing sequences that encode a polypeptide lacking a transmembrane domain. In particular p. 11 of the specification notes that a plasmid containin the sequence encoding human mGlu5M referred to interchangeably as YI176 is what was deposited. However, the specification does not note what other DNA inserts if any are in the plasmid. Further, the specification fails to note any particular peptides lacking a transmembrane domain or sequences which hybridize under stringent conditions.

Given the unpredictability of homology comparisons as noted above, see in particular Skolnick et al., and Choh et al., and the fact that the specification fails to provide objective evidence that any other additional sequences are indeed species of

the claimed genus it cannot be established that a representative number of species have been disclosed to support the genus claim. No activity is set forth for the additional sequences. The stringent hybridization conditions are not specified and the DNA insert claimed is not noted to be relevant to YI176. Thus, the claim recitations lack adequate written description support.

Applicant's amendments to the claims, which remove reference to "% identity" and to "N-" and "C-terminal" domain language, obviates rejection on these grounds. Rejection based upon hybridization "under stringent conditions" is maintained. Applicants argue in the response of 5-6-04 that the specification notes particular conditions at pp. 16-17 thus providing sufficient written description.

Applicant's arguments presented 5-6-04 have been fully considered but are not persuasive. Pages 16-17 note various conditions that may be applied in hybridization procedures and that may be considered "stringent". However, the passages fail to define the term to any particular conditions. Absent clarification of the specific "stringent conditions" to be utilized, insufficient written description is provided and the artisan cannot discern those nucleic acids encompassed within the genus either by structure or by function. Note new rejection of record with respect to "lacking a transmembrane domain" and the isolated nucleic acid comprising the DNA insert of the plasmid deposited with ATCC as PTA-2775 (claim 12). Definition of the "stringent conditions" would further prosecution. Amendment of claim 12 to refer to the "YI176 DNA insert" would further prosecution.

15. Claims 5, 10-11, 15-19 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contain subject matter which was not described in the specification in such a way as to enable one

skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specifications disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without undue experimentation. The factors relevant to this discussion include the quantity of experimentation necessary, the lack of working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims.

Applicants claims are directed to hybridizing sequences under stringent conditions, hybridizing sequences and sequences that encode a polypeptide lacking a transmembrane domain.

The specification does not enable the broad scope of the claims which encompasses a multitude of analogs or equivalents because the specification does not teach which residues can or should be modified such that requisite functionality is maintained, note utility rejection above. The specification provides essentially no guidance as to which of the essentially infinite possible choices is likely to be successful in any particular use and the skilled artisan would not expect functional conservation amongst homologous sequences. Thus, applicants have not provided sufficient guidance to enable one skilled in the art to make and use the claimed derivatives in a manner reasonably correlated with the scope of the claims.

For example, the skilled artisan recognizes as noted in Skolnick et al., above and as further exemplified by Choh, PNAS 77(6):3211-14, 1990, that one or more amino acid deletions, insertions or substitutions including truncations results in unpredictable

effects in the resulting biological molecule, its' biological function, the ability to bind and/or exhibit similar immunoreactivity. The specification teaches no structural or functional activities of the noted variants and fails to teach any residues which may be exchanged while retaining requsite activity or function. In particular, there is no significance or function for the variant molecules. As to the nucleic acids, the skilled artisan recognizes that encoding nucleic acids are dependent upon the structural nucleotides and their relationship to the genetic code as well as translational signals. The specification fails to note those nucleic acid molecules that are capable of encoding the requisite peptides. The specification fails to describe those sequences capable of encoding a peptide lacking a transmembrane domain and fail to specifically note a relevant transmembrane domain within the human mGluR5M to which the claims are directed. No such transmembrane domain is established in the art for this sequence. Further, as to hybridization conditions, Sambrook et al., Molecular Cloning, Cold Spring Harbor Labs, 1989 pp. 9.47-9.51, 11.48-49 notes various stringent conditions that are variable depending upon the relevant sequences, the G+C content, salt concentrations, length of the molecules and relevant melting and hybridization temperatures. Yet the specification and claims fail to delimit the conditions deemed sufficient to provide for the noted molecules as claimed. Thus, as noted above the nucleic acids encoding the peptide structures, lacking transmembrane domains and hybridizing under stringent conditions and their pertinent sequences are insufficiently disclosed to enable to the full scope of the claim.

The scope of the claims must bear a reasonable correlation with the scope of

enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without such guidance, the changes which can be made and still maintain activity/utility is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See Ex parte Forman, 230 USPQ 546 (Bd. Pat. App. & Int. 1986). Thus, the skilled artisan cannot readily make and use the claimed sequences without further undue experimentation.

Claim Rejections - 35 USC § 102

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

17. Claim 13 is rejected under 35 U.S.C. 102(b) as being anticipated by Stratagene random primers, 1991 catalog, p. 66.

Stratagene teaches the use of random 9-mers capable of hybridizing with all possible gene sequences. The random primers meet the claim limitations because the primers are a complement to SEQ ID NO:1 and are able to bind under stringent hybridization conditions as the activity of extension exemplified is dependent upon hybridization of the random primer sequences. As noted in the catalog the primers and included reagents are capable of generation 500-1000 nucleotide segment primer copies. Thus, the reference teachings anticipate the claimed invention.

18. Claims 10-11, 13, 15-19 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Fuller et al., US 5,981,195 issued 11-9-1999.

Fuller teaches chimeric receptors and methods for identifying compounds active at metabotropic glutamate receptors (mGluR) and particular regions or fragments of mGluR receptors. Fuller acknowledges the establishment within the art of the amino acids and nucleic acids encoding mGluR5, see in particular Abe et al., 1992, page 1, face of the patent, column 2, line 47-column 3, line 8. Fuller SEQ ID NO:3 and 4 share 59.7% identity with instant SEQ ID NO:2. Fuller SEQ ID NO:3 shares 24.6% identity with instant SEQ ID NO:1. Fuller SEQ ID NO:3 also share 40% identity with instant SEQ ID NO:3. The substantial homology within the noted sequences of mGluR1 evidences that the nucleic acids encode fragmental regions of the mGluR5M peptide and that the nucleic acids would be capable of hybridizing under stringent conditions. In particular, Fuller teaches nucleic acids encoding the various peptides, vectors, transfected host cells as well as hybridization procedures as indicated at columns 45-46. Fuller teaches 3 dimensional structure of mGluR receptors comprising intracellular, transmembrane and extracellular domains, see in particular columns 7-8. Further, Fuller teaches preferred chimeric and fragment sequences comprising either intracellular, extracellular or transmembrane sequences apart from full length or constructs from homologus regions as in chimeric swapping of domains, see also colum 14-15. Fuller teaches where transmembrane regions are replaced via calcium receptor (CaR) active molecules, see column 20-21. Fuller teaches soluble (extracellular domain) receptors as noted at column 27. Fuller further notes mutants comprising

extracellular regions of mGluR receptors with transmembrane and cytoplasmic regions of calcium receptors, see also column 29. The Fuller sequences would inherently hybridize under stringent conditions to complements of SEQ ID NO:1 and 3 and as noted via Fuller the fragments and chimeras are noted to encode molecules lacking transmembrane domains and/or regions. While the Fulller reference does not teach a nucleic acid comprising SEQ ID NO:1 as in claim 13, it does teach a complement thereof in that the noted sequences share significant homology with contiguous segments and hence the reference teaches "a complement thereof". Amendment to "the full complement thereof" may distinguish the partial complements of Fuller. Thus, the reference teachings anticipate the claimed invention.

Status of Claims

19. No claims are allowed.

20. Any inquiry of a general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Papers relating to this application may be submitted to Technology Center 1600, Group 1640 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for Group 1600 is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon L. Turner, Ph.D. whose telephone number is (571) 272-0894. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached at (571) 272-0961.

Sharon L. Turner, Ph.D.
July 22, 2004

SHARON L. TURNER, PH.D.
PATENT EXAMINER